

1 would that change what those results mean?

2 A. Certainly. It would increase. You know, the  
3 higher the percent of alcohol that was converted, then  
4 there would be a higher result for the positive. So the  
5 point is that variation can be significant between  
6 people and we see that, you know, when we expose people  
7 to things like I mentioned Cepacol. And in another  
8 study they gave people sips of alcohol, you know,  
9 measured quantities of vodka and there was quite a range  
10 there too. So it just represents the fact that  
11 different people are different in the way they produce  
12 this metabolite and it ranges quite widely.

13 Q. Now, in your professional expert opinion is there  
14 any agreed upon or known cutoff level for EtG levels to  
15 indicate that somebody has been drinking?

16 A. No. There is no published, recognized level and  
17 part of the reason for that is just what I mentioned is  
18 there's not been any study that systematically looked at  
19 a large number of people. All of the studies have been  
20 two, three, ten, you know, at the most a dozen people  
21 being tested and the problem is we need hundreds or even  
22 thousands of people before we can really see what that  
23 range is going to be. Studies have not been done and I  
24 worry that it will never be clear-cut because the number  
25 of sources of exposure is so wide that, you know, it's

1 going to be a range in there no matter what. It's not  
2 going to be a clear line.

3 Q. And since this testing has come into use in the  
4 United States, has there been discussion about what  
5 would be an appropriate cutoff level?

6 A. That discussion has gone on and I've got caught  
7 in that myself. Initially we did think that 500 would  
8 be a reasonable cutoff as Mr. Martin has suggested, but  
9 when I did the hand gel study, it sort of blew that one  
10 because we got 770 on the pharmacist just using hand gel  
11 every half hour through the day. And so, you know, then  
12 I thought, well, a thousand might be a reasonable  
13 cutoff. And then we had a doctor that we had that  
14 fairly certainly had only used topical alcohol on  
15 joints, liniment, and he had a level of 1500. And we've  
16 seen more and more cases that just worry me to set any  
17 number. I do believe that the higher the level, the  
18 more likely it's going to be drinking. So if we get  
19 into levels over 50,000. We've seen levels in the  
20 millions. And so extremely high levels are much more  
21 likely to be drinking, but levels under 50,000 or under  
22 20,000 are still in the ballpark where they could be  
23 incidental exposure.

24 Q. Well, it's been --

25 A. I've been reluctant to set a number any more

1 because of the experience I've had with that level going  
2 up. And, by the way, that has happened with other  
3 things similar to this, for example, with poppy seeds.  
4 We know historically and, by the way, I'm old enough to  
5 know that initially nobody thought poppy seed could  
6 cause a positive for morphine, but then it was proven  
7 that poppy seeds can cause a positive to morphine  
8 because they do have a little bit of opium in the seeds.  
9 And so we set, the government and everybody decided,  
10 well, we'll set that level at a thousand because it  
11 looked like in almost every case the morphine level was  
12 under a thousand. Well, once that is done, next we knew  
13 somebody was positive over a thousand and it was proved  
14 it was poppy seed and so the level was moved to 2,000,  
15 and then it was moved to 5,000 because we found more  
16 people that had more potent poppy seeds in Costco  
17 muffins and so forth. And then more recently through a  
18 case involving Delta airline a stewardess was studied  
19 and they ended up moving the level to 15,000.

20 So this reflects what I mentioned before,  
21 which is the more people that undergo these kinds of  
22 things, the more we find exceptions. And if we keep  
23 moving the cutoff up, the problem is the test loses its  
24 value because the test is designed to pick up drinking  
25 and the beauty of it is that it stays positive for

1 longer, but in order to stay useful, we have to keep --  
2 I advocate keeping the cutoff low but employing the  
3 confirmation test that we now have and that's the way we  
4 do all of the drug testing and that's what we should be  
5 doing. Not just relying on a positive screen.

6 Q. It's been testified to that there is a scientific  
7 foundation that EtG concentrations in excess of 500  
8 nanograms per milliliter are not consistent with  
9 incidental exposure. Obviously you don't agree with  
10 that.

11 A. I strongly disagree. I've seen it in my own  
12 research with subjects in a lab setting. As I  
13 mentioned, it's conjecture and based on small numbers  
14 and wishful thinking. I mean the labs would like to be  
15 able to say this test proves drinking. That way they  
16 can sell the test. In fact, some of them still say it  
17 on their websites. Others have taken it off because  
18 they have been sued, but the fact is, you know, an EtG  
19 alone does not prove drinking. An EtS alone does not  
20 prove drinking.

21 Q. Now, is it possible that someone with EtG levels  
22 of 1130 has in fact consumed alcohol?

23 A. Oh, certainly. Oh, yeah.

24 Q. Is it also possible that someone with those  
25 levels did not consume alcohol?

1       A. Oh, certainly. It's in the gray zone. I've had  
2 people admit drinking with levels of 110, you know, so  
3 that's why we keep the cutoff low so we can pick up  
4 drinking at those low levels. The problem is it's not  
5 proof of drinking. So, yeah, 1130 could be drinking,  
6 and it may not be drinking.

7       Q. Well, that brings me to my last question, Dr.  
8 Skipper, and thank you. So in your opinion does an EtG  
9 level of 1130 provide you with clear and convincing  
10 evidence that somebody has drank an alcoholic beverage?

11       A. No.

12                   MR. GUDMUNDSON: Thank you very much, Dr.  
13 Skipper.

14                   THE COURT: Mr. Widseth.

15                   MR. WIDSETH: Thank you, Your Honor.

16   CROSS-EXAMINATION

17 BY MR. WIDSETH:

18       Q. Good afternoon, Dr. Skipper.

19       A. Good afternoon.

20       Q. I'm going to start, first of all, with this  
21 confirmatory test. You gave the name of it and I'm  
22 sorry I didn't get it written down. Do you have an  
23 abbreviation for it?

24       A. It's usually abbreviated with a capital "P"  
25 capital "E" and then a lower "th". P-E-t-h.

1 Q. So P-E-t-h. Okay. The PEth test, you said that  
2 in the program you are in you use that as a confirmatory  
3 test?

4 A. Yes.

5 Q. And how long is that able to detect alcohol or  
6 ethanol ingestion after the ingestion?

7 A. It stays positive about three weeks.

8 Q. And so depending on how long it takes to get test  
9 results back, that confirmatory test may or may not be  
10 available, is that correct?

11 A. Correct.

12 Q. And you said it's more specific for drinking?

13 A. It is.

14 Q. And why is that?

15 A. Well, what it is, the full name of the test is  
16 phosphatidyl ethanol and what it is is when you drink,  
17 the ethanol molecule, the alcohol molecule binds to the  
18 phosphatidyl lipids on the cell membranes in your blood  
19 and it's mainly the red blood cells and it never comes  
20 off. It's stuck there. Some amount of ethanol is bound  
21 to the cell and it only goes away when the cell is taken  
22 out of the system, which red blood cells last an average  
23 of about a month. So the test will stay positive two to  
24 three weeks.

25 Now, it only goes positive, however, if a

1 person has about 100 grams of ethanol, you know,  
2 consumed within a week and that's about seven standard  
3 drinks. So if somebody had that much exposure, seven  
4 standard drinks in a week, then they will convert to  
5 positive and stay positive for about three weeks. And  
6 we consider that confirmatory for drinking because it  
7 would be extremely difficult to get 100 grams of ethanol  
8 from those sources of incidental exposure I mentioned.  
9 So what it turns out is that the EtG is highly  
10 sensitive. It picks up just about everything, but  
11 phosphatidyl ethanol is more specific because it only  
12 goes positive with a greater amount of alcohol, but a  
13 low enough amount that most people that are going to  
14 relapse and drink, drink more than seven drinks in a  
15 week.

16 Q. But that still wouldn't catch a person that has  
17 an absolute abstinence requirement that goes out and has  
18 a beer or whatever?

19 A. That's correct.

20 Q. On an occasional basis, is that correct?

21 A. That's correct.

22 Q. Or someone that drinks a six-pack every week that  
23 test wouldn't catch either.

24 A. It may not. That's only six drinks.

25 Q. Now, you had indicated a number of different

1 items that can create -- well, that can make and/or can  
2 make the presence of EST -- or EtG or EtS in the urine,  
3 and I think you gave mouthwash, over-the-counter meds,  
4 Nyquil.

5 A. Right.

6 Q. Communion wine.

7 A. Right.

8 Q. Now, first of all, how many of those items are  
9 you aware that have been tested and peer reviewed in the  
10 scientific literature?

11 A. Let's see, well, in the scientific literature I  
12 am not seeing -- I've seen the hand gel tested and peer  
13 reviewed. Hang on a second. I've seen analysis in peer  
14 review journals of alcohol content. But as far as  
15 showing the effect of EtG in peer reviewed literature,  
16 very few. I've seen, you know, proprietary studies that  
17 labs have done and has shown these amounts, again, in  
18 small amounts of people, but the studies have not been  
19 adequately done, that's true.

20 Q. Okay. And I just did a little of my own looking.  
21 First of all, you published an article on EtG back in  
22 2004, would that be correct?

23 A. Yes.

24 Q. And at least I've been able to find it in a  
25 couple of journals. I found one on alcohol and



1 alcoholism in the Journal of Medicine Licensure and  
2 Discipline.

3 A. Yes.

4 Q. And in those articles you had indicated that  
5 cutoff levels from measuring EtG and urine have been set  
6 at between 100 and 250 micrograms per liter, I think it  
7 is, to eliminate detection of incidental minor exposure  
8 to alcohol, would that be correct?

9 A. Right.

10 Q. And you had indicated at that time that at least  
11 the current analysis suggests that if a level of EtG in  
12 urine exceeds 500 micrograms per liter, incidental  
13 exposure is extremely unlikely.

14 A. Right.

15 Q. And that's no longer your opinion, is that  
16 correct?

17 A. Correct.

18 Q. Are you aware of any of the peer review  
19 literature that's given, that's out there on the issue  
20 of EtG that's given a result, say, for hand sanitizer is  
21 greater than 1,000 nanograms per liter?

22 A. I would have to research that a little bit, but I  
23 think probably not.

24 Q. And, in fact, even your antidotal study which I  
25 think was just published back in June of 2009, the

1 highest level you were able to come up with was 770  
2 nanograms per milliliter, is that correct?

3 A. That's correct.

4 Q. And these are some pretty, at least I wouldn't  
5 call them extreme, but some pretty elevated uses as far  
6 as when, as for say your study, the 770 nanograms per  
7 milliliter, that was some pretty extensive use of the  
8 hand sanitizer, wasn't it?

9 A. That was the case where there was, it was used  
10 every half hour for eight hours, so 16 uses in a day.  
11 And I should point out, you know, just for clarity that  
12 all of these studies look at one, usually in order to  
13 make sense of it, they look at one exposure source, like  
14 hand gel or mouthwash.

15 Q. Correct.

16 A. But there can be multiple and my worry is they  
17 add up.

18 Q. But you don't have anything to support that, do  
19 you?

20 A. No, nothing other than common sense. It's just  
21 not adequate research.

22 Q. And as I said, that 750 nanograms per milliliter,  
23 that was someone that, as you indicated, that used  
24 alcohol every half hour for eight hours, is that  
25 correct?

1 A. Correct. So 770.

2 Q. But that was on the second day of the test, isn't  
3 that correct?

4 A. Right.

5 Q. On the first day of the test she also used  
6 alcohol or that same hand sanitizer with 62 percent  
7 alcohol every hour for eight hours.

8 A. Correct.

9 Q. And would you also agree that -- I don't know,  
10 there's been some testimony that at least the research  
11 would show and I think your research would confirm some  
12 of that, is that most of these incidental exposures have  
13 a spike, is that correct?

14 A. They do. There's a time element. That's right.

15 Q. And that time element is relatively short with  
16 most of these incidental exposures, would that be  
17 correct or not?

18 A. Well, actually, it would be correct with any kind  
19 of exposure. There's going to be a, you know, it tends  
20 to be that with drinking or with small exposures, it  
21 peaks at about four to six hours and then it falls off  
22 gradually from there.

23 Q. Okay. And, again, you're not aware of any  
24 studies involving hand sanitizers that would support a  
25 conclusion that using hand sanitizers in and of itself

1 would result in an EtG level in excess of 1,000  
2 nanograms per milliliter, is that correct?

3 A. That's correct.

4 Q. And, in fact, there are a number of them that  
5 would indicate that the number is substantially lower  
6 than that?

7 A. Correct. For that alone.

8 Q. Yes. For hand sanitizers.

9 A. Yes.

10 Q. In fact, I think there's one by Rohrig and Ross  
11 that would indicate that it didn't affect anyone except  
12 for one person. Have you ever read that?

13 A. I think that was a small number of people, but  
14 yeah, I remember that. Ventilation makes a big  
15 difference and stuff like that too, so there are a  
16 number of variables that they didn't really control for.  
17 You know, it's hard to compare studies sometimes.

18 Q. And you had indicated that you had some medical  
19 students that you had tested that got up to 800  
20 nanograms per milliliter.

21 A. Yes.

22 Q. And how often were they using the hand sanitizer?

23 A. That was extreme. They were -- we had them use  
24 it 30 times in an hour in a room that had no  
25 ventilation, so it was reeking of alcohol. But that was

1     only three medical students.

2           Q.   And you had indicated that levels of up to 20,000  
3     to 50,000 nanograms per milliliter could still be in the  
4     realm of possibility for incidental exposure.

5           A.   That's what I'm worried about. I have a concern  
6     that that's possible, you know, because we don't have  
7     enough research in large groups of people. I guess my  
8     point is that at some point as you go up the levels, it  
9     could be impossible to be from incidental exposure  
10    because we have some levels up into the hundreds of  
11    thousands or even millions and I wouldn't contend that  
12    that could be from hand gel, but where does that number  
13    cut off. Right now I don't have an answer for that and  
14    I would like to see a lot larger number of people be  
15    studied.

16          Q.   I understand. But your opinion on that is just  
17    your opinion. It doesn't have any scientific support in  
18    any literature out there, is that correct?

19          A.   Well, that's true.

20          Q.   Now, if I'm recalling correctly and I'm sorry,  
21    Dr. Skipper, but I've been reading quite a bit of stuff  
22    on this in the last couple of days and it might have  
23    been that advisory back in 2006 that I think you were at  
24    least part of. You had looked at a couple of areas  
25    where the EtG testing had use and one of them I think

1 was in for cause testing where there was some sort of  
2 heightened concern?

3 A. Right.

4 Q. Like following a report by someone that someone  
5 had been consuming alcohol.

6 A. Right.

7 Q. Is that correct?

8 A. I'm not sure exactly what you're referring to,  
9 but early on, especially when the test was more  
10 expensive, it was mainly used in settings like that.  
11 Now it's gotten quite a bit cheaper so we use it sort of  
12 routinely, but I think that might be what you're  
13 referring to. Certainly when there's heightened concern  
14 would be a good time to use it.

15 Q. But any test result you have with respect to any  
16 particular person you also got to look at the person  
17 you're dealing with, correct, and any other evidence you  
18 have with respect to that person's alcohol consumption?

19 A. You bet.

20 Q. I mean, I assume you would look at a test result  
21 of 1130 from someone whose, at least by all evidence  
22 never consumed any alcohol, you would look at that with  
23 kind of a skewed eye, wouldn't that be correct?

24 A. Right. That's right.

25 Q. And if you had someone that was a long-term

1 alcoholic that had numerous relapses, at least that 1130  
2 could have a little bit more evidentiary value, would  
3 that be correct?

4 A. Absolutely. It would be clinically, I mean in  
5 medicine you've got to put the clinical picture with the  
6 test and the whole picture matters. So I'm pretty sure  
7 your concern is that it could be actual drinking.

8 Q. Yes. And I think you said that a lot of times  
9 when you get these positive tests you try to approach  
10 someone and see if you get an admission from them.

11 A. Exactly.

12 Q. At least on the screening test before you do the  
13 confirmatory test, would you say that?

14 A. Yes.

15 Q. You approach them in a supportive way and try to  
16 get them at least back into the treatment regiment, is  
17 that right?

18 A. I actually encourage them to admit drinking and  
19 then get them back into the regiment, yes.

20 Q. Because part of the treatment regiment is the  
21 admission that you got a problem, right?

22 A. Exactly.

23 Q. It wouldn't do much good to have someone not  
24 admit they were drinking and get them back into  
25 treatment.

1       A.   That's correct, usually.

2               MR. WIDSETH:  I don't have any further  
3 questions at this time, Your Honor.

4               THE COURT:  Mr. Gudmundson.

5               MR. GUDMUNDSON:  I have no questions, Your  
6 Honor.

7               THE COURT:  All right.  Thank you, Dr.  
8 Skipper.  I believe that concludes your testimony.

9                               -----

10               I hereby certify that the foregoing constitutes  
11 a full, true and correct transcript taken from my  
12 original stenographic notes on the date and at the place  
13 indicated herein.

13                               -----  
14                               Lisa Peterson, RPR  
15                               District Court Reporter  
16                               Crookston, Minnesota  
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